Lapeer Community Schools

Structured Cabling – Turrill Additions
Request for Proposal

December 2004

.

LAPEER COMMUNITY SCHOOLS
Structured Cabling Request for Proposal – Turrill Additions

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SECTION A: GENERAL TERMS AND CONDITIONS

1. GENERAL REQUIREMENTS

1.1 INTENT

It is the intent of **Lapeer Community Schools** (here after referred to as "Owner," also as "District") to solicit proposals from qualified vendors for a Structured cabling System for voice, data and video cabling to address the new additions to Turrill Elementary School.

Bidders may partner with another provider to supply a complete and turnkey solution. If your response contains proposed services or equipment from multiple providers, all responding parties must be clearly identified and a synopsis of the partner relationship as well as the party that will serve as the prime vendor/contact for the District must be detailed. The Owner reserves the right to proceed with the provider deemed most suitable.

1.2 DEADLINE FOR PROPOSALS

Three (3) copies of the vendor's proposal must be submitted by **1pm local time on Thursday, January 6, 2005.** Copies should be submitted to:

(3) copies to:
Nick Ward
Technology Director
Lapeer Community Schools
1025 West Nepessing Rd.
Lapeer, MI 48446

All proposals must be in a sealed envelope and contain the wording ***Lapeer Community Schools Structured Cabling System - Turrill*** on the envelope/package.

1.3 VENDOR'S CONFERENCE

There will be a **non Mandatory Vendor's Conference** on *Wednesday, December 29th, 2004 at 10:00 AM local time at* Turrill Elementary. The purpose of the meeting is to discuss with prospective vendors contract specifications and to answer any questions concerning this bid. Any answers furnished that change or substantially clarify the bid will be confirmed in writing to all attendees. Floor plans of the building will be available at the Vendor's Conference. Prints will be available electronically at the vendor's conference.

1.4 BID BONDS

Every bid shall be accompanied by either a certified check on a solvent bank or by a bond executed by a surety company authorized to do business in the State of Michigan. A 5% Bid Bond shall be required. Such check or bond shall name Owner as recipient. The amount of such bid bond or certified check shall be forfeited as liquidated damages, costs and expenses incurred by the Owner if the vendor, after given an award as successful vendor, shall fail within thirty (30) days after the notice of such award to enter into appropriate contract with the Owner.

1.5 PERFORMANCE AND PAYMENT BONDS

The owner will require the selected vendor(s) to provide a performance bond upon award of the contract. The associated cost of the performance bond is to be included in the base bid but **shown as a separate line item**. This bond shall be equal in amount to the Total Price to the owner of purchased hardware, software, cabling, and services. The Surety of the bond shall remain in effect until all acceptance of purchased hardware, software, and services have been executed by the owners. In the event that the vendor(s) fails to perform its obligations under any contract between the vendor(s) and the owner, the bond shall be paid to the owner. The vendor(s) further agrees to save and hold harmless the owner and agents from all liability and damages of every description in connection with any subsequent contracts. Payment bonds shall be required under the following conditions: project award exceeds $50,000 **and** project involves construction, alteration, or repair to school district buildings.

1.6 INSPECTION OF WORKSITE

Before submitting bids, each bidder shall inspect representative sites and review all floor plans of the proposed work to arrive at a clear understanding of the conditions under which the work is to be done. Bidders will be held to have compared the premises with the specifications, and to have satisfied themselves as to all conditions affecting the execution of the work. If additional building walk-throughs are necessary, a request must be made to Nick Ward at 810.667.2401.

1.7 BID CLARIFICATIONS

All inquiries regarding this proposal must be written and should be faxed or e-mailed to:

Silvio Vano
Plante & Moran, PLLC
248-223-3337
248-603-5919 (Fax)
Silvio.Vano@plantemoran.com

1.8 PROPOSAL FORMAT

1.8.1 Bidder Response Forms

Supplied with the RFP are Bidder Response Forms. These forms provide the format for the response and must be completed and submitted for your base bid proposal to be considered. Exceptions to specifications shall be noted here. Add/Alternate designs may be quoted separately as an attachment.

1.8.2 System Literature and Brochures

The bid response is to include appropriate brochures and other manufacturer documentation to help illustrate and describe the system and its capabilities.

1.8.3 Cutsheets

Technical documentation (specification sheets) shall be included for all major components part of bidder's solution.

1.8.4 Bill of Material

A complete bill of material must be included with the bid response. It should be organized by system component to include:

A. System Component Name/Description
B. Quantity Quoted
C. Unit Price
D. Extended Price.

1.8.5 Description of Technical Solution

A brief executive overview explaining the proposed design and any unique strengths/weaknesses is to be included in bid responses.

1.8.6 Diagram of Design

For each section where requested, the bidder shall submit a diagram of their design providing a pictorial representation of their proposed solution.

1.8.7 Implementation Schedule

Cabling shall begin at Turrill Elementary School in January 2005 and shall be coordinated with construction in an effort to minimize potential damage to ceiling grids and tile. The installation must be complete by late March 2005.

1.8.8 Additional Information

Additional information may be provided at the vendor's discretion including Add/Alternate designs.

1.9 CONFIDENTIAL INFORMATION

As a public entity, the owner is subject to the Michigan Freedom of Information Act (FOIA). Information contained in proposals may be subject to FOIA requests.

1.10 RIGHT TO REQUEST ADDITIONAL INFORMATION

The Owner reserves the right to request any additional information that might be deemed necessary after the completion of this document.

1.11 RIGHT OF REFUSAL

Owner reserves the right to refuse any or all proposals in their entirety, or to select certain equipment or software products from various vendor proposals, based on the best interests of the Owner. Owner reserves the right to reject any or all proposals for a specific section.

1.12 PROPOSAL PREPARATION COSTS

The vendor is responsible for any and all costs incurred by the vendor or his/her subcontractors in responding to this request for proposal.

1.13 SYSTEM DESIGN COSTS

The successful vendor shall be responsible for all design, information gathering, and required programming to achieve a successful implementation. This cost must be included in the base bid.

1.14 PRICING ELIGIBILITY PERIOD

All vendor proposal bids are required to be offered for a term not less that **120** calendar days in duration.

1.15 ADDITIONAL CHARGES

No additional charges, other than those listed on the price breakdown sheets, shall be made. Prices quoted will include verification/coordination of order, all costs for shipping, delivery to all sites, unpacking, setup, installation, operation, testing, cleanup and training.

1.16 TURNKEY SOLUTION

All prices quoted must include all the cables, connectors, etc. that will be necessary to make the system specified **fully operational** for the intent, function and purposes stated herein.

1.17 FEDERAL OR STATE SALES, EXCISE, OR USE TAXES

Lapeer Community Schools is tax-exempt entity for all purposes except if the project makes enhancements, and/or additions to real property.

1.18 PURCHASE QUANTITIES

The Owner reserve the right to adjust upward by two (2) times, or downward by twenty five (25%) percent, the quantities of items purchased including wiring drops without altering the unit purchase price upon award and throughout the contract period.

1.19 CONTRACT REQUIREMENTS

The Owner intends on using the Agreement contained in **Appendix III** for this project. Please review attached Agreement and indicate whether you comply with the proposed Agreement. Include all exceptions in your proposal, if any.

1.20 SURVIVAL CLAUSE

All duties and responsibilities of any party that, either expressly or by their nature, extend into the future, shall extend beyond and survive the end of the contract term or cancellation of this Agreement.

1.21 FORCE MAJEURE CLAUSE

See Agreement in **Appendix III**.

1.22 INCORPORATION BY REFERENCE

The Vendor shall supply equipment, wiring, technology, training, and other related services adequate to accomplish the requirements as set forth in the Request for Proposals and the Vendor response to the Request for Proposals. Parties agree that where there is a conflict between terms of this Agreement and the information presented in the referenced documents, this Agreement shall take precedence. The parties also agree that where there is not a conflict between this Agreement and the information presented in the referenced documents, that all terms, conditions and offers presented in the Vendor's proposal shall herein be referenced to the Agreement and shall be binding upon all parties to the Agreement.

1.23 RISK DURING EQUIPMENT STORAGE AND INSTALLATION

Delivery shall be made in accordance with the implementation schedule referenced as part of this Agreement. It will be possible to allow for minor variances from this implementation schedule as mutually agreed upon by both parties and confirmed by prior written notice. The equipment shall be installed and placed into good working order by representatives of the Vendor. During the time period where the equipment is in transit and until the equipment is fully installed in good working order, the Vendor and its insurer shall be responsible for the equipment and relieve the Owner of responsibility for all risk or loss or damage to the equipment. In addition, Vendor shall hold the Owner and agents harmless from any risk of loss or damage arising out of occurrences during the installation of the equipment.

1.24 SHIPPING OF EQUIPMENT

All shipping and insurance costs to and from the site shall be included in the Vendor's proposal. All payments to shipping agents and for insurance fees shall be made directly by the Vendor. The Owner shall make no payments to any firm concerning the shipment, installation, and delivery of equipment which is not a part of this Agreement and for which exact payments are not described. Vendor shall be responsible for all arrangements for the shipment and receipt of equipment to Owner' prepared site. The Vendor shall provide all properly trained representatives to unpack all items of equipment and place this equipment in the proper locations. The Vendor shall also be responsible for removal of all debris and packing materials from the site resulting from the installation of the equipment. The Owner, at its option, may require the Vendor to provide certificates describing, to the satisfaction of the Owner, evidence of proper (as required by the State of Michigan) worker's compensation and liability insurance for all Vendor staff and representatives involved in the installation of the computer equipment and software. The Owner shall be named as an additional insured and as the Certificate Holder for all work under this Agreement.

1.25 NON-WAIVER OF AGREEMENT RIGHTS

It is the option of any party to the Agreement to grant extensions or provide flexibilities to the other party in meeting scheduled tasks or responsibilities defined in the Agreement. Under no

circumstances, however, shall any parties to the Agreement forfeit or cancel any right presented in the Agreement by delaying or failing to exercise the right or by not immediately and promptly notifying the other party in the event of a default. In the event that a party to the Agreement waives a right, this does not indicate a waiver of the ability of the party to, at a subsequent time, enforce the right. The payment of funds to the Vendor by Owner should in no way be interpreted as acceptance of the system or the waiver of performance requirements.

1.26 GENERAL INDEMNIFICATION

See Agreement in **Appendix III**.

1.27 PATENTS, COPYRIGHTS, AND PROPRIETARY RIGHTS

See Agreement in **Appendix III**.

1.28 NONDISCRIMINATION BY VENDORS OR AGENTS OF VENDOR

See Agreement in **Appendix III.**

1.29 SUBCONTRACTORS

See Agreement in **Appendix III**.

1.30 EFFECT OF REGULATION

See Agreement in **Appendix III**.

1.31 PROJECT MANAGEMENT STAFF DESIGNATION

The Vendor understands that the successful installation, testing, and operation of the system that is the subject of this document shall be accomplished by a cooperative effort. To most effectively manage this process, the Vendor shall designate a single representative to act as project manager, who shall have the authority to act on behalf of the Vendor on all matters pertaining to this Agreement.

In the event that an employee of the Vendor is, in the opinion of the Owner, uncooperative, inept, incompetent, or otherwise unacceptable, the Vendor agrees to remove such person from responsibility in the project. In the event of such a removal, the Vendor shall, within fifteen (15) days, fill this representative vacancy as described above. Regardless of whom the Vendor has designated as the representative, the Vendor organization remains the ultimate responsible party for performing the tasks and responsibilities presented in this Agreement.

1.32 ASSIGNMENTS

Owner and the Vendor each binds themselves, their partners, successors, and other legal representatives to all covenants, agreements, and obligations contained in this Agreement.

1.33 VENDOR AS INDEPENDENT CONTRACTOR

It is expressly agreed that the Vendor is not an agent of Owner but an independent contractor. The Vendor shall not pledge or attempt to pledge the credit of Owner or in any other way attempt to bind the Owner.

1.34 INSURANCE

The Vendor must have adequate insurance, for damage or loss, for all equipment and other valuables, until such time as the Owner receives good and clear title. In defining insurance coverage, the Vendor shall secure full replacement value for the system without the requirement that the Owner be responsible for any payments or deductibles. In the event that it is necessary to make a claim under this policy, any funds received by the Vendor shall be used to secure replacement equipment for the Owner.

The Vendor agrees to hold harmless and defend the Owner and its agents, officials and employees from any liability, claim or injury, related to or caused by fault or negligence of Vendor employees or subcontractors. In order to demonstrate this responsibility, the Vendor shall furnish the Owner with evidence of valid comprehensive general liability insurance coverage in the amount of one million dollars ($1,000,000) for each occurrence for personal injury (including death or dismemberment) and property damage related to or resulting from shipping, installation, operation, or removal of the proposed automated system. The insurance policy shall make clear this coverage of the Owner installation. The insurance policy shall be initiated prior to the installation of the system and maintained until final acceptance of the system by the Owner according to the prescribed procedures. The Vendor shall furnish to the Owner a copy of the insurance policy and all subsequent changes or updates.

1.35 WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE

The Owner has presented detailed technical specifications of the particular purpose for which the network and technology is intended. The Owner has provided detailed descriptions and criteria of how the system can be defined to accomplish particular purpose. The Owner has also defined the exact procedures and techniques to be employed in testing whether the system has achieved the defined performance of this particular purpose. Given this advanced preparation concerning, and documentation about the Owner's particular purpose, the Vendor at the time this Agreement is in force has (1) reason and opportunity to know the particular purpose for which products are required, and (2) that the Owner is relying on the Vendor's experience and knowledge of these products to provide those which are most suitable and appropriate. Therefore, the Vendor warrants that the system is fit for the purposes for which it is intended as described in this document.

1.36 WARRANTY

The Vendor warrants that all components provided under this Agreement, whether installed initially or under subsequent purchase orders, shall be: newly manufactured equipment or assembled from newly manufactured parts; and, will be free from defects in workmanship or material for the period required in each section of this RFP from the date of final system acceptance. During this 15 year warranty period, the Vendor shall furnish all replacement new

parts, shipping costs, repaired parts, service labor, travel costs, and other repair costs at no cost to the Owner.

1.37 FINAL ACCEPTANCE OF THE SYSTEM

The system proposed shall be defined to be finally accepted by Owner after the installation of the equipment, training, and successful completion of the following performance examinations: system hardware examination, performance examination, system functional competence examination, system capacity examination, full-load processing capacity examination, system availability examination, approval of as-builts, training, and system documentation. The Owner or Owner's Representative shall be the sole judge of whether all conditions for final acceptance criteria have been met.

1.38 STANDARD FORMS AND CONTRACTS

Any forms and contracts the vendor(s) proposes to include, as part of any agreement resulting from this bid between the vendor(s) and the Owner must be submitted as part of the proposal. Any forms and contracts not submitted as part of the bid and subsequently presented for inclusion may be rejected. This requirement includes, but is not limited to, the following types of forms: subcontractor, franchise, warranty agreements, maintenance contracts, and support agreements.

1.39 NON-COLLUSION COVENANT

The Vendor hereby represents and agrees that it has in no way entered into any contingent fee arrangement with any firm or person concerning the obtaining of this Agreement. In addition, the Vendor agrees that a duly authorized Vendor representative will sign a non-collusion affidavit, in a form acceptable to Owner, that the Vendor firm has received from Owner no incentive or special payments, or considerations not related to the provision of automation systems and services described in this Agreement (see Bidder Response Form).

1.40 ADVERTISEMENT

The laws of the State of Michigan, Owner purchasing policies and the legal advertisement for contractors and purchases, are made a part of any agreement entered into the same respect as if specifically set forth in that agreement.

1.41 SELECTION CRITERION

Owner intends to enter into a long term relationship with a well-established vendor whose products, features, design philosophy and support policies come closest to meeting the Owner's needs. The selected vendor must be a well-established, financially stable firm committed to technology for school Owners, will have a commitment to attracting and retaining an excellent staff of technical and product support personnel, and will have a proven track record of support from installation planning through implementation and ongoing use. There should also be evidence of responsiveness to clients' suggestions for improvements. Finally, there must be a good fit between vendor staff and the Owner's staff to assure a good working relationship.

The Vendors will be evaluated based on the following selection criteria:

1.41.1 Compliance to Specifications

a) Technical Requirements
b) Implementation Support
c) Proposal Requirements
   1. Bid bond
   2. Submission deadline compliance
   3. Proposal format
   4. Bid summary
   5. Completeness of information supplied
   6. Complete "bill of material"

1.41.2 Implementation Support

a) Commitment of Local Personnel
b) Implementation Time Frame
c) Technical Training
d) User Training

1.41.3 Operations Support

a) Availability of Support Personnel
   1. Local support
   2. Proven responsiveness
   3. Response time guarantees
b) Operational Guarantees
   1. Overall system availability
   2. Real-time response time
c) Internal Organization
   1. Size
   2. Reputation
   3. Specialization
   4. Financial viability

1.41.4 Experience

a) Overall Experience
b) Local Experience

1.41.5 Cost

a) Initial System Price and Implementation Fees
b) Annual Support Fees
c) Ongoing Operation
d) Maintenance Costs
e) Payment Terms

1.42 SPECIAL NOTES

Failure to include in the proposal all information outlined above may be cause for rejection of the proposal.

The Owner reserves the right to accept the vendor's replacement of any component if it is considered equal or superior to the specifications. Such acceptance will be in writing.

1.43 PAYMENT TERMS

It is the intent of the Owner to negotiate a payment scheduled based upon the following milestones:

A. Installation/Progress
B. Acceptance Testing
C. Retainage - 90 days from Live Systems Operation

1.44 PREVAILING WAGES

The vendor shall comply with all applicable prevailing wage and fringe benefit rates as specified in Michigan's Prevailing Wage Act MCL 408.551 et. seq for this project.

SECTION B: VENDOR INFORMATION

2. VENDOR PROFILE

See Bidder Response Form.

3. SERVICE RATES AND RESPONSE

See Bidder Response Form.

SECTION C: STRUCTURED CABLING

4. STRUCTURED CABLING

4.1 GENERAL REQUIREMENTS

4.1.1 Project Design

Bidders shall formulate a base bid to design, furnish, and install the cable infrastructure for the Owner within the parameters addressed by this specification. The scope of this project includes a structured cabling System for voice, data and video cabling to address additions and renovations at Turrill Elementary School.

4.1.2 Implementation Schedule

See Section 1.8.7.

4.1.3 New Materials

All equipment quoted by bidder shall be new. Any exceptions must be specifically noted as "Used Equipment".

4.1.4 Manufacturer's Warranty/Certified Installation

The copper data cable (Category 6) installations and fiber optic installations shall be part of a manufacturer's certified program to include a minimum 15-year warranty on the entire channel. Minimally, the Category 6 and fiber optic installation must include a Manufacturer's Performance Certification and a minimum 15-year warranty on all material and labor. The Certification may be through a single manufacturer that supplies all cabling and connectors or through a joint program (one manufacturer's cable combined with another manufacturer's connectors). All other cabling (copper voice backbone cabling) must be supplied with a minimum one-year labor and material warranty; an extended manufacturer's warranty on these cables is desirable.

4.1.5 Alternate Designs

Recognizing variations in vendor equipment and design configurations, alternate solutions may be submitted. Alternate bids may be accepted when they satisfy the objectives of the Specification providing efficiency, economy, or elegance unachievable through the base bid design. Alternative solutions are to be priced separately from the base bid.

4.1.6 Building Walk-Throughs

Bidders may arrange, through the Owner, additional site and building walk-throughs in order to assess design and installation matters related to assembling your proposal. The vendor will be responsible for noting any drops that are out of distance in the bid response based on review of the prints. If additional tech closets are required due to drops out of length that the vendor fails to note, the expense of the new tech closet will be absorbed by the vendor, including fiber and copper backbones, racks, etc.

4.1.7 Location of Workstation Outlets

Upon bid award, the selected vendor shall be responsible for performing building walk-throughs with the Owner (or Owner's representative) to determine all final outlet locations.

4.1.8 Location of Cabinets and Racks

Upon bid award, the selected vendor shall be responsible for performing building walk-throughs with the Owner (or Owner's representative) to determine the final floor and/or wall mounting locations for all cabinets, racks, 110 blocks and associated equipment. There will be one new IC added in one of the two new wings. The other cables will pull back to the MC.

4.1.9 Plenum/Non-Plenum Rated Cable

Provide plenum cable throughout.

4.1.10 Surface Raceway

The majority of all additions will contain double gang deep flush mount boxes. No additional raceway is anticipated. There may be instances when it is more expedient to have the cabling contractor install surface raceway, to be determined by the owner. If so, additional raceway will be addressed in the following method:

A. Provide a price for a single channel raceway with a box mounted at 18" A.F.F. If utilized this will be applied as an "Add" to the contract during implementation.
B. Provide a price for a single channel raceway with a box mounted at 18" and 96" A.F.F. If utilized this will be applied as an "Add" to the contract during implementation.

4.1.10.1 Site Review

The successful bidder must perform a walk through of the site prior to beginning installation. This walk through will be done in conjunction with the construction management and/or the technology designer to ensure that all work associated with the cable pathway as noted on the blueprints has been completed by the electrical contractor. It will be the vendor's responsibility to note all items not installed at that time. All items not noted will become the vendor's responsibility to install at no additional cost.

4.1.11 Construction Meetings

The chosen vendor will be required to have a representative attend weekly construction meetings during the installation process.

4.2 SYSTEM OVERVIEW – CURRENT ENVIRONMENT

The Lapeer Community Schools Turrill Elementary School is a single story block construction with the majority of ceilings being lay in tiles. There are two new wings being added to the existing school. One wing will have a new MC added and the existing MC will become an IC. All services delivered to the existing MC will be moved to the new MC by this contractor. This is new construction with flush mount boxes.

4.3 SYSTEM OVERVIEW – TO BE PROPOSED

The new installation will consist of CAT 6 cabling for data, voice and video to be installed in classrooms, offices, and other learning areas. **Appendix II** contains a matrix of rooms and drop quantities.

Typical classrooms: The typical classroom will have an instructional location with two data at 18", one voice at 18", and a student location with five data at 48". There will also be a VGA and dual RCA installed from the 18" low teacher's station to the TV high location located on the opposite wall of the teacher's station.

The boxes at 18" for the teacher station and the student stations will be double gang flush mount boxes. The boxes at 96" for the teacher station will be extra deep, single gang flush mount.

4.3.1 Site Information

Appendix I provides general information on the site of the project.

4.3.2 Summary of Intra-Building Requirements

Appendix II provides a summary of drops by room for each site.

4.3.3 Building Floorplans

Marked Building Floorplans identifying wiring closets and drop locations shall be distributed at the prebid meeting in hard copy. An AutoCAD format will be provided to the selected vendor to be used for as-builts.

4.4 WIRING CLOSETS DEFINED

The definition and hierarchy of wiring closets as used in this specification is defined as follows (see **Appendix II**).

4.4.1 Main Cross-Connect (MC)

The Main Cross-Connect (MC) designates the main wiring closet from which all structured cabling originates within a building

4.4.2 Intermediate Closet (IC)

The Intermediate Closet (IC) designates the secondary wiring closets within a building. The IC is also commonly referred to as the Intermediate Distribution Frame (IDF).

4.4.3 Workstation Outlet (WO)

The Workstation Outlet (WO) is the termination point for the horizontal cabling being delivered to the work area. The WO typically consists of voice and data jacks (RJ-45) and/or fiber optic connectors (SC, ST).

4.5 DATA EQUIPMENT CABINETS AND RACKS

Provide 84" racks based on the quantities shown in **Appendix II.** Refer to the specifications below for specific requirements for each cabinet or rack.

4.5.1 84" Free Standing Relay Rack

- Dimensions: 84" H x 19" W
- Single or Dual Rails: Single
- Rail Mounting Holes (Type): Fully tapped for 12-24 hardware
- Rail Mounting Holes (Pattern): Universal mounting hole pattern (5/8", 5/8", ½")
- Base: Self-Supporting
- Top: Top Angle
- Composition: Aluminum
- Finish: Black
- Power Strip: 10 Position to be mounted by the vendor in a location deemed appropriate

Installation Method: Mount relay rack securely to the floor. Supply and install **ladder rack** from top of relay rack to rear wall in order to route cables neatly from closet entry point to relay rack.

4.5.2 Vertical Wire Management

Both rails in a rack or cabinet shall be equipped with vertical wire management modules extending from the base to the top of the unit, both front and rear. There shall be **hinged** covers that hide the patch cables when routed within. The cover should be able to be hinged open as well as allow the cover to be completely removed.

4.5.3 Horizontal Wire Management

Each patch panel installed into a rack or cabinet shall receive a horizontal wire management panel/trough installed below it. This will include front and rear wire management. The rear is for routing of cable until it is terminated on the back of the patch panel. There shall be **hinged** covers that hide the patch cables when routed within.

4.6 VOICE CABLING - CATEGORY 6 HORIZONTAL DISTRIBUTION

4.6.1 Specifications - Category 6 Horizontal Cabling

All Category 6 cabling shall meet ANSI/TIA/EIA 568B.1-3 cabling specifications. The characteristics of these cables are specified up to 100 MHz. All Category 6 cabling will adhere to installation procedures and recommendations as shown in the NEC, EIA/TIA 568B (.1-.3), TSB 67 and BICSI TDMM.

Drop Counts:	See **Appendix II**
Jacket insulation:	Plenum
Pair Count:	4 Pair
Gauge:	24-AWG solid copper conductors
Qualifications:	NEC Certified, CSA Certified, UL Standard 444

4.7 VOICE CABLING - HORIZONTAL BACKBONE

Utilize plenum backbone cabling.

4.7.1 Specifications - Category 3 Multi-Pair Backbone Cabling

All Category 3 copper backbone cabling shall meet ANSI/TIA/EIA-568B.1-.3 cabling specifications. Cable will require an insulation rating consistent with the environment it is to be installed into. See **Appendix II** for a summary of pair counts required between wiring closets.

Pair Count Between Closets:	100 Pair from each IC to the MC
Inside Plant Jacket insulation:	Plenum
Gauge:	24-AWG solid copper conductors
Qualifications:	NEC Certified, CSA Certified, UL Standard 444

4.8 TERMINATION – VOICE CABLING

4.8.1 Termination at the Wiring Closet – Patch Panels & 110 Blocks

Horizontal Voice cabling shall be terminated on separate CAT 6 patch panels. The Backbone cabling will be terminated on separate CAT 5 patch panels in all closets with patch cords cross connecting the horizontal drops to the backbone. In the MC, the backbones will run from the patch panel in the IC to 110 blocks. The horizontal voice cabling in the MC will terminate on CAT 6 patch panels in the rack. There will be a 100 pair terminated on another CAT 5 patch panel that runs up to a wall mounted 110 block on the **vendor provided and installed** fire rated backboard. The vendor is responsible for all voice patching between patch panels.

4.8.2 Termination at the Workstation Outlet

See “Work Area Outlet.”

4.8.3 Patch Panel Patch Cords - Voice

Provide voice patch cords as part of this Section’s base bid. They should be 1-2 feet in length and be a different color than the data patch cables. The vendor should provide one voice patch cord per voice outlet installed. The vendor will also be responsible for cross connecting all voice drops.

4.9 DATA CABLING - CATEGORY 6 HORIZONTAL DISTRIBUTION

The Category 6 structured cabling system must be capable of supporting 1000 Base-T to and from each workstation over unshielded twisted pair (UTP) cable out to a total channel distance of 100 meters. The Category 6 cabling system shall be installed to conform and perform, at a minimum, with the current CAT 6 standard. All components of the CAT6 system will be both component and channel compliant.

4.9.1 Specifications – Category 5e Horizontal Cabling

All horizontal cabling is to be insulated with a plenum jacket. All Category 6 cabling will adhere to installation procedures and recommendations as shown in the NEC, EIA/TIA 568B.1-3 and

most recent drafts, TSB 67, TSB95, and BICSI Telecommunications Distribution Methods Manual as well as local building codes.

Drop Counts:	See **Appendix II**
Jacket insulation:	Plenum
Cable Category:	Category 6
Pair Count:	4 Pair
Gauge:	24-AWG solid copper conductors
Qualifications:	NEC Certified, CSA Certified, UL Standard 444

4.10 TERMINATION – DATA CABLING

4.10.1 Termination at the Wiring Closet – Category 6 Patch Panels

Category 6 cabling shall be terminated onto rack mount patch panels that support the Category 6 standard. The rear of the panel will have 110 blocks mounted on printed wiring boards providing a continuous interconnection to the 8 pin modular RJ-45 jack field on the front of the panel. There will be a separate patch panel for the video termination. See **Appendix II** for the minimum patch panel port requirements per wiring closet.

Port Count per Patch Panel:	48
Port Termination (front):	RJ-45
Port Termination (rear):	110
Mounting Application:	Rack
Wire Management (front):	One horizontal WM panel per patch panel
Wire Management (rear):	One horizontal WM panel per patch panel
Wiring Configuration:	T568B

4.10.2 Termination at the Workstation Outlet

NOTE: See “Workstation Outlet.”

4.10.3 Category 6 Patch Panel Cords

Category 5e patch panel cords are used to provide connection between the CAT6 patch panel and the wiring closet electronics. All CAT6 cordage shall meet the level of performance specified for the proposed Category 5e standard.

Quantity & Length:	See **Appendix II**
Pair Count:	4 Pair
Gauge:	24-AWG stranded or solid copper conductors
Jacket:	PVC
Qualifications:	NEC Certified, CSA Certified, UL Standard 444
Wiring Configuration:	T568B
Length:	**70% 2 foot, 30% 4 foot**

The Contractor shall provide one (1) Category 6 patch cord per horizontal drop installed into the wiring closets.

4.10.4 Category 6 Workstation Outlet Cords

Category 6 cords are used to provide connection between the work area equipment and the communications outlet. All Category 6 cordage shall meet the level of performance specified for the Category 5e standard.

Pair Count:	4 Pair
Gauge:	24-AWG stranded or solid copper conductors
Jacket:	PVC
Qualifications:	NEC Certified, CSA Certified, UL Standard 444
Wiring Configuration:	T568B
Length:	**15 feet (4.3 meters)**

The Contractor shall provide one (1) Category 6 workstation cord per horizontal drop for use at the Work Area Outlet.

4.11 SPECIFICATIONS

4.11.1 50 µm Laser Optimized Multimode Fiber Optic Backbone Cabling

Optical fiber shall comply with ANSI/TIA/EIA 492AAAA and also ANSI/TIA/EIA 568B.1-3 on Mechanical Terminations. Cable shall require an insulation rating consistent with the installation environment. All installation procedures outlined in NEC, ANSI/TIA/EIA 568A, 568B.1-.3, 569, TSB 67 and BICSI TDMM shall be followed. Fiber optic cable shall meet or exceed the following specifications:

Mode:	Multimode	
Buffer Tube Design:	Tight Buffer Tube (Distribution or Breakout)	
Fiber Type:	All Glass	
Index Type:	Graded Index	
Core Diameter:	50 µm	
Cladding Diameter:	125 µm	
Strand count:	See **Appendix II**	
Jacket insulation:	Plenum (OFNP)	
Max. Attenuation	@ 850nm:	2 dB/km
	@ 1300nm:	1.5 dB/km
Minimum Bandwidth:	@ 850nm :	2000 MHz/km
	@ 1300nm:	2000 MHz/km

4.11.2 Specifications - Singlemode Fiber Optic Backbone Cabling

Mode:	Singlemode	
Buffer Tube Design:	Tight Buffer Tube (Distribution or Breakout)	
Fiber Type:	All Glass	
Core Diameter:	8-9 µm	
Cladding Diameter:	125 µm	
Strand count:	See **Appendix II**	
Jacket insulation:	Plenum (OFNP)	
Max. Attenuation	@ 1310nm:	1.00 dB/km
	@ 1550nm:	0.75 dB/km
Minimum Bandwidth	@ 1310nm :	dispersion < 3.2 MHz/km

@ 1550nm: dispersion < 18 MHz/km

4.11.3 Innerduct

Fiber optic cabling shall be installed within innerduct. Innerduct shall require an insulation rating consistent with the installation environment. All breaks in the innerduct should be properly sealed with couplers, etc.

4.12 SPLICES – FIBER OPTIC CABLING

4.12.1 Identification of Splice Locations

Splices are to be kept to an absolute minimum. Bidders shall identify on the Bidder Response Form all locations where they intend to splice the fiber optic cabling. Bidders shall identify method of splicing (mechanical or fusion). Each individual splice loss shall be no more than .3 dB.

4.12.2 Splice Closures

Where one fiber optic cable must be spliced to another, a splice closure shall be used to protect the transition point. Splice closures and splice cabinets shall have provisions for splice trays that preserve the minimum bend radius of the optical fiber strand and manage the strands. Each closure and cabinet shall be suitable for the environment for which it is installed.

4.13 TERMINATION - FIBER OPTIC CABLING

4.13.1 Fiber Optic Connectors

Optical fiber connectors shall be **SC**. Connectors shall meet or exceed the TIA/EIA 568-B.1-3 performance for both multimode and singlemode. The optical attenuation per each mated field-installed 568SC connector pair shall not exceed 0.75 dB per ANSI/TIA/EIA-455-34, factory testing or ANSI/TIA/EIA-455-59, field testing.

4.13.2 Fiber Optic Patch Panels

Fiber optic cables in each wiring closet shall be fully terminated into fiber optic patch panels providing a flexible point for cross connection or inter-connection of fiber optic cables for premise applications.

Mounting Type:	Rack mount (19”)
Connector Type:	SC type
Connector Quantity:	To Be Sized Appropriately (100% Connectorization)

4.13.3 Fiber Patch Cords

Contractor shall supply patch cords for cross connection or inter-connection of fiber connector panels. For the MC, the Contractor shall provide two (2) dual strand fiber patch cord for each IC and TC connecting back to it. For each IC, the Contractor shall provide one (1) dual strand fiber patch cord for each TC connecting back to it. All patch cables will be 4 meters in length.

The fiber patch cords shall meet or exceed the following specifications:

Quantity and Length:	See above and **Appendix II**	
Mode:	Multimode	
Configuration:	Duplex (2 fiber strands)	
Connector Type:	SC	
Ferrule Material:	Ceramic	
Max. Insertion Loss:	0.5 dB	
Max. Attenuation:	@ 850nm:	3.75 dB/km
	@ 1300nm:	1.50 dB/km
Min. Bandwidth:	@ 850nm :	160 MHz/km
	@ 1300nm:	500 MHz/km

Quantity and Length:	See above and **Appendix II**	
Mode:	Singlemode	
Configuration:	Duplex (2 fiber strands)	
Connector Type:	SC	
Ferrule Material:	Ceramic	
Max. Insertion Loss:	0.5 dB	
Max. Attenuation:	@ 1310nm:	2.00 dB/km
	@ 1550nm:	1.75 dB/km
Min. Bandwidth:	@ 1310nm :	dispersion < 3.2 Mhz/km
	@ 1550nm:	dispersion <18 MHz/km

4.14 WORKSTATION OUTLET

Raceway and/or junction boxes shall be provided and installed by the electrical contractor as noted on the prints. Bidders must provide all faceplates, connectors, back boxes, and any other components for a complete solution.

4.14.1 Faceplate

Material:	Steel
Configuration:	Minimum of nine outlets
Size:	Dual-gang, standard NEMA opening
Mounting:	Flush mount / Surface mount
Qualifications:	UL Listed, CSA Certified
Color:	**Brushed Stainless Steel**

4.14.2 Backbox

Where a surface mount is required, provide a single gang backbox compatible for use with the faceplate quoted as well as raceway.

Material:	High impact plastic
Color:	**OFFICE WHITE**

4.14.3 Voice Outlet

Category 6 jacks must provide component compliance with the ratified Category 6 standard. All jacks should be keystone in size.

Application:	Desk Telephone

Configuration:	Modular 8 pin conductor (RJ-45)
Style:	Individual snap-in style jacks
Qualifications:	UL Listed, CSA Certified
Wiring Scheme:	T568B
Color:	**WHITE**
Engraved/Embossed:	"VOICE", etc.

4.14.4 Data Outlet

Category 6 jacks must provide component compliance with the ratified Category 6 standard. All jacks should be keystone in size.

Application:	Data Device
Configuration:	Modular 8 pin conductor (RJ-45)
Style:	Individual snap-in style jacks
Qualifications:	UL Listed, CSA Certified
Wiring Scheme:	T568B
Color:	**ORANGE**
Engraved/Embossed:	"CAT6", "DATA", etc.

4.14.5 Blank Outlet

Unused ports shall be equipped with color-coordinated (to the faceplate) blanks.

4.14.6 Faceplate & Jack for Wall Mount Telephone

Wall mount telephones require a unique faceplate equipped with an RJ-45 jack and two mounting posts.

Application:	Wall Mount Telephone
Material:	Double gang steel plate with steel posts.
Configuration:	Modular 8 pin conductor (RJ-45)
Style:	Standard RJ-45 Modular jack
Qualifications:	UL Listed, CSA Certified
Wiring Scheme:	Tip/Ring
Color:	**Brushed Stainless Steel**

4.14.7 VGA / Dual RCA

Provide a VGA and dual RCA's jumpered from the teacher's low location (18") to the TV High location (84") approximately 40' away on the opposite wall of the teacher's location. All solutions must be capable of passing the signal from a computer video and sound card to the Data Monitor with sufficient strength. If an amplifier is needed, it shall be included as part of the base bid costs.

4.15 CABLE AND COMMUNICATIONS OUTLET LABELING

4.15.1 Labeling Scheme

The successful contractor must have the outlet labeling scheme approved by the Owner or its representative ***prior to*** installation. The preferred labeling scheme will consist of a label designating the closet the drop is cabled to, the patch panel the drop is terminated on (to be

labeled A, B, C, etc. in each closet) and the corresponding number on each patch panel (i.e. 1 through 48). The faceplate and patch panel should also show the room number.

4.15.2 Cable Labeling

Each horizontal UTP cable shall be labeled at each end with an adhesive-backed designation strip. The strips must be designed to with stand the heat of the closets they are terminated into without peeling off. All labeling must meet TIA/EIA 606 standards.

4.15.3 Faceplate Labeling

Each communications outlet shall be labeled (to be clearly visible) with an adhesive-backed label such as those available from Brady USA, Inc. All labels should be placed under a clear plastic cover to provide a tamper resistant solution. All labeling must meet TIA/EIA 606 standards.

4.16 SURFACE RACEWAY

4.16.1 Use of Raceway

There will be very little if any raceway used in this project.

4.17 SPECIAL CONSIDERATIONS

Include these costs as part of your base bid.

4.17.1 Individual Drop Costs

Provide the costs for three options to add UTP cable following the bid award during the project installation timeframe. Include in your cost all material, labor, labeling, testing, and documentation for this drop.

- Individual SVGA / dual RCA from a low location to the TV high location approximately 40 feet away.
- Individual CAT 6 drop cost
- Combined CAT6 drop cost (2 drops pulled to the same location)
- Additional 24 Port Patch Panel
- Additional 48 Port Patch Panel
- Cost to install an individual S-Video with a dual RCA jumper from the teachers station to the TV high location. They are approximately 40 feet apart.

4.18 CUTSHEETS – CABLING & CONNECTORS

Submit a cutsheet on all cabling, connector products and equipment proposed with your proposal.

4.19 INSTALLATION REQUIREMENTS

The contractor will adhere to the installation requirements that follow below.

4.19.1 Cable Support

Communication wiring shall be independently supported and not laid on top of or in direct contact with ceiling grids or panels. "J" hooks shall be used to support cable and should be mounted off of the deck or the building steel. The use of bridle rings will not be allowed unless they possess a rolled plastic insert at least 1" in width. Mounting on conduit, ducts, or pipes is not acceptable. Vendor shall bundle station wiring with velcro at appropriate distances. Cable shall be supported every **four (4)** feet. Only **Velcro strips** are to be used for bundling cabling anywhere in the installation. Fill capacities for the "J" hooks shall not be exceeded.

4.19.2 Concealment

The Contractor shall conceal horizontal distribution wiring internally within the walls or within Owner provided raceway. If such obstruction exists, Contractor shall secure owners approval prior to the use of an alternate method.

4.19.3 Continuous Runs

Each run of cable between the termination block and the information outlet shall be continuous without any joints or splices. It is anticipated that required coring and sleeving will be completed during renovation of the buildings. The cabling vendor is responsible for all cores and sleeves necessary that are not shown on the prints. Provide pricing in your base bid to provide any necessary sleeves and cores that are not shown in the prints.

4.19.4 Coring – Optional Pricing

The electrical contractor shall provide the cores noted on the prints. **Additional cores may be necessary. Vendors shall be responsible for all additional required coring (include in base bid).** All cores are to be fitted with sleeves, bushings, and fire stopping. All work must comply with current EIA/TIA standards and city, state and federal building codes. Also provide unit pricing for 1," 2" and 4" cores. Coring and all associated requirements must including sleeves, bushings, and fire stopping.

4.19.5 Fire Stopping

Any firewalls penetrated to facilitate the routing of communication wiring shall, upon completion of that wiring, be fire stopped using approved methods as outlined in the National Electric Code, and all applicable State, County, and City ordinances. The contractor shall be responsible for fire stopping all penetrations that are used for routing of the contractor's cable regardless of who made the penetration access. The vendor shall use the Hilti CP 658 Fire stop plugs or equivalent. The contractor is also responsible for providing all necessary documentation to show that the fire stopping meets all applicable State, County, and City ordinances including a copy of the fire marshal approval.

4.19.6 Grounding

Grounding shall meet the appropriate requirements and practices of applicable authorities and/or codes. Additionally, all grounding/bonding shall conform with ANSI/TIA/EIA-607 requirements. The vendor shall minimally install Telecommunications Grounding Bus bars in each closet with all closets grounded to the MC with a minimum of a bare #3 AWG copper conductor.

4.19.7 Horizontal Distances - Category 6

The maximum horizontal distance between the distribution frame and the outlet in the work-area shall not exceed 295 feet (90 meters). An allowance of 27 feet (9 meters) is made for the combined distance used for both the patch panel cord and the workstation cord. A remaining distance of 3 feet (1 meter) is allocated for slack at the wiring closet.

If any Category 6 drop will exceed the 100 meter distance limitation, it is the responsibility of the vendor to identify these locations in the bid response. Failure to identify drops over distance will require the vendor to pay all additional costs for an appropriate closet. It is also the responsibility of the Vendor to acquire Owner approval before installing the data drop.

4.19.8 Horizontal Routing

The Cabling Contractor must assure that UTP cables are routed away from sources of interference, e.g., power lines, motors, fluorescent lights, HVAC, etc. All cables shall be protected from contact with sharp metal edges. The following routing guidelines shall be adhered to:

Interference Source	Distance from Cable
Power lines <2KVA	5 inches
Power lines 2-5KVA	12 inches
Power lines >5KVA	36 inches
Fluorescent lights	5 inches
Motor/ generators/ RF sources	40 inches

All cables are to be run parallel or at right angles to building steel, hallways, and pathways.

4.19.9 Service Loops

A service loop shall be provided in each cable link. Service loop length: **10'**

4.19.10 Topology

The 4-pair UTP cables shall be run using a star topology. Each cable shall be run from the wiring closet to every individual communications outlet. Fiber optic cable shall directly link all TC's to the MC/IC.

4.19.11 Rack/Cabinet Facility Organization

Racks and cabinets are to be configured as follows starting with the top rails and working to the bottom rails:

- Fiber Optic Patch Panels
- Category 6 Patch Panels and Cabling (wire management between each patch panel)
- Network Electronics (Routers, Switches, Hubs)
- Power Distribution (UPS's)

5. DOCUMENTATION

5.1 DOCUMENTATION

The Contractor shall provide **(2)** complete sets of system documentation as detailed below**.**

5.1.1 As-Built Drawings

The Contractor will prepare, complete field installation drawings. This drawing will show the location of all cables installed by cable number. As-built drawings should be documented on the owner-provided architectural blueprints/building floor plans. Contractor shall document:

A. All wiring closet locations
B. All cable drop locations
C. Pathways from TC locations back to the MC/IC location (including fiber optic strand counts and copper backbone pair counts where applicable)
D. All core locations (including core size and whether they are through a wall or a floor)

The successful vendor shall be responsible for manually documenting the hard copy floor plans with the as-built documentation. The Contractor will provide hard copy as-built prints to the owner as part of final acceptance.

5.1.2 As-Built Drawings (Electronic)

The Contractor will provide all as-built information on Owner provided electronic files (CAD format) in both hard (Size B drawings) and electronic copies (2 CD's).

5.1.3 Cable Records

The Contractor will provide the owner with a detailed cable record spreadsheet, consisting of the following (provide on both paper and electronic spreadsheet media):

A. Building Identification (where multiple buildings are involved)
B. Wiring Closet Room Number
C. Work Area/Room Number
D. Jack Number
E. Teacher's location

5.1.4 Manufacturer System Manuals

The Contractor will provide the Owner with all System Manuals where System Manuals are provided by the manufacturer.

5.1.5 Warranty Documentation

Upon acceptance by the manufacturer, the Contractor shall provide all warranty documentation associated with the cable installation.

5.1.6 Documentation Turnover

The Contractor shall provide an inventory of all documentation (including test results) submitted to the Owner and shall obtain the signature of the recipient.

6. ACCEPTANCE / TESTING CRITERIA

6.1 ACCEPTANCE CRITERIA

Upon completion of work and prior to the final acceptance, the Contractor will submit to the Owner:

A. All As-built Drawings
B. All Cable Records
C. All System Manuals
D. All Warranty Documentation
E. All Testing Results (must demonstrate satisfactory test results)

6.1.1 Category 6 Horizontal Distribution

CAT6: Testing of all cable drops shall be performed before system acceptance. Perform link tests (information outlet to the point of origination) on all CAT6 cabling showing all drops to meet the requirements of TIA/EIA 568B.1-3, TSB-67, TSB-95 Level III compliant for tester accuracy based on TIA/EIA 568A.1-5.

6.1.2 Fiber Backbone – Power Meter Testing

Testing of fiber shall be performed prior to system acceptance. Power meter testing provides documentation of the amount of attenuation across a span on a single fiber. All fibers shall undergo bi-directional attenuation testing with an optical meter at:

Multimode:Both 850nm and 1300nm wave length, both 62.5 and 50 micron, (reference ANSI/TIA/EIA-527-14A)

Singlemode: Both 1310nm and 1550 wave length (reference ANSI/TIA/EIA-526-7)

All tests must be conducted from end to end. This must be performed with a light source and power meter to measure the complete link (including optical fiber, splices, and connectors). All tests must conform to specifications (follow recommended procedures stated in the TIA/EIA-568-A and 568B standard - Annex H-Optical fiber link performance testing). Hard copies of the testing results shall be provided.

6.1.3 Fiber Optic Connector Loss Values

The maximum loss values for patch panels and patch cords shall not exceed the manufacturer's specified values. At no point shall the following loss values be exceeded:

Splice (Mechanical):	0.30 dB
Splice (Fusion):	0.30 dB
Connector (mated pair):	0.75 dB
Cross-Connect (two mated pairs):	1.50 dB

6.1.4 Testing - Submission of Results

Test results are to be submitted to the owner:

Nick Ward
Lapeer Community Schools
201 Jefferson St.
Lapeer, MI 48446

6.2 FINAL ACCEPTANCE

The Contractor shall demonstrate that all work is complete, free from physical and electrical defects or deficiencies and in satisfactory operating condition. The Owner shall be allowed to inspect and test the work performed and to notify Contractor of any deficiencies. The Owner or their designated representative will be the sole judge as to whether the work has been completed properly. All material or equipment that is deemed not to comply with this RFP will be replaced by the Contractor, at no charge to the Owner, prior to final payment.

7. WARRANTY

See 4.1.4 of this section for warranty requirements. Provide a copy of the manufacturer warranty in your proposal.

8. VOICE AND DATA CABLING COSTS

8.1 PURCHASE PRICE – VOICE AND DATA CABLING

See the Bidder Response Form.

Provide all costs associated with the equipment and services specified in **Section C**. Provide the following information:

- A complete, itemized equipment list including quantity of cable supplied
- The base bid amount for the complete project. If any miscellaneous costs need to be included, be sure to identify and explain them.
- Warranty period and terms

8.2 SUBCONTRACTORS AND REFERENCES

8.2.1 Subcontractors

See Bidder Response Form.

8.2.2 References

See Bidder Response Form.

8.3 EXECUTIVE OVERVIEW

Attach an Executive Overview explaining your base bid solution for this Section.

SECTION D
VIDEO DISTRIBUTION CABLING AND COMPONENTS

9. VIDEO DISTRIBUTION CABLING AND COMPONENTS

9.1 GENERAL DESCRIPTION

This section of the RFP provides a description of the broadband cabling backbone used to distribute the video signals originating from the cable TV provider (Comcast). This section describes the functional video distribution requirements.

9.1.1 General Expectations

A. This section outlines the specifications for a broadband distribution systems at two of the wings in Turrill Elementary. It shall be the responsibility of the vendor to design, furnish, and **install additions to the existing distribution system**. In the event that the components necessary to accomplish the stated objectives are not contained within this Specification, bidders are expected to add the needed items to meet the purpose and objectives of this project.

B. Because of the variations in vendor equipment and design configurations, bidders may voluntarily quote an alternative solution - priced separately from the base bid - if the bidder believes the objectives of this Specification can be met more efficiently, economically, or elegantly by using a design other than that stated in this Specification.

C. All equipment quoted by bidder shall be new. Any exceptions must be specifically noted as “used equipment”.

9.1.2 District Intent

The District's intent is for the Broadband Distribution System vendor to:

A. Install a broadband distribution system in both new wings of Turrill Elementary. This new system will run back to the new MC and connect to the existing system. General information regarding this site can be found in **Appendix I**.
B. Extend the cable modem feed in the current MC to the new MC in the new addition.
C. Provide all necessary labor to design, install and implement the broadband video system (see **Appendix II** for quantities).
D. Provide testing and documentation as specified herein.

9.1.3 Implementation Schedule

See 1.8.7 for the schedule.

9.2 RESPONSIBILITIES

9.2.1 Fully Operational

The successful vendor shall design, engineer, configure, supply, final connect, test, train, document and warrant two **fully operational** legs to the existing Broadband Distribution System. To this end, it is the vendor's responsibility to provide a bid that includes all necessary functioning and compatible elements to permit full, efficient, and complete operation of the new legs of the Broadband Distribution System without compromising the existing quality.

Absent of specifically stated omissions (exceptions) in the vendor's proposal, the contract award will require a full, efficient and completely operational Broadband Distribution System providing all of the functions described in this document for the base bid. The vendor may itemize separately missing components on the Bid Summary Form.

9.2.2 Completeness

It is the sole responsibility of the vendor to assure that all components have been identified which will permit the full, efficient, and complete function of the Broadband Distribution System. The omission or missed specification of any support component does not relieve the vendor from the responsibility for providing a bid that includes all necessary functioning and compatible elements to permit full, efficient, and complete operation of the Broadband System.

9.2.3 Design and Installation

The proposed system shall utilize a trunk and branch architecture. The vendor shall install all new equipment, install all in-room wiring, all connectors, passives and install miscellaneous equipment as required for a fully functional system. The vendor shall be responsible for all testing and documentation. The new system will be tied into the existing system in the MC. The vendor is not responsible for correcting any problems with the existing solution.

9.2.4 Warranty

It shall be the responsibility of the vendor to provide on-site services to maintain and/or repair the operating Broadband Distribution System throughout the installation period and one (1) year after acceptance.

9.2.5 CATV Service

It shall be the successful vendor’s responsibility to coordinate and review the proposed system with the CATV provider to ensure a complete and functioning system. The CATV provider is Comcast

9.2.6 Extension of CATV Services

It shall be the successful vendor’s responsibility to extend the incoming CATV providers signal from the boiler room to the new MC in the new wing.

9.3 BROADBAND VIDEO SYSTEM DESIGN

The bidder is to provision a complete 1000 MHZ Bandwidth Local RF Network to every area identified on the building floor plans (to be distributed at the Vendors Conference). If 1,000 MHz products are not available at the time of this bid, bidders are to take exception to this Section and clearly identify any non-compliant components bid. The equipment specified shall provide the following system architecture:

9.3.1 Architecture

The system shall utilize a trunk and tap architecture to achieve distribution of channels. Trunk cable shall consist of RG-11 or hardline cable as deemed appropriate by the vendor. Tap cable

for feeder runs shall consist of quad shielded RG-6 type coaxial cable. All drops must accommodate two-way transmission.

9.3.2 Standards Compliant

The Broadband Video System shall comply with IEEE 802.7 standards, FCC, NEC and NESC regulations. The system shall meet or exceed the technical standards set forth in the FCC Rules, Part 76 and applicable CLI standards.

9.3.3 Bi-Directional Access & Allocation

All areas identified on the floorplans shall have a drop location at 84" or 96" AFF that is capable of bi-directional access over the cable plant.

9.3.4 Channel Requirements

The system must be capable of a minimum of 125 channels, as built.

9.3.5 Bandwidth Requirements

The Broadband Video System shall be designed with a pass bandwidth of 5 MHZ to 1000 MHZ.

9.3.6 Broadcast from Production Cart

The District will not be using production carts.

9.3.7 Reception Requirements

System additions shall provide for reception of monochrome (black and white) and color TV transmissions (at every outlet) equal to that obtainable on a single standard receiver connected directly to the system sources.

9.3.8 Final Amplifier Outputs

The system design minimum shall be a 43 dB carrier-to-noise ratio and -46 dB (0.5%) cross modulation level at output of the last amplifier in the distribution channel.

9.3.9 System Radiation

System radiation shall not exceed the following limits:

- **A.** 5 MHZ to 54 MHZ - 15 μ meter @ 10 ft.
- **B.** 54 MHZ to 216 MHZ - 20 μ meter @ 100 ft.
- **C.** 216 MHZ to 400 MHZ - 15 μ meter @ 100 ft.

9.3.10 Channel Expansion Requirements

The system shall be designed so subsequent expansion to additional VHF or UHF channels shall require addition of head-end equipment only.

9.3.11 Tap Levels

Each classroom tap shall provide minimum signal levels as follows: +5 dBmv throughout the 1000 MHZ spectrum within a tolerance of +/- 3 dB. All measurements shall be made at 75 ohms.

9.3.12 Drop Length

Each new system tap shall be located so that no drop exceeds 100' in length from the tap port to the last outlet.

9.3.13 Reverse Tilt

Reverse tilt shall not exceed +/- 3 dB at any outlet location.

9.3.14 Tap Port Growth Requirements

New systems shall be designed with sufficient tap ports to allow for 100% expansion. As an example, if four drops are required from one tap location - an eight-port tap shall be utilized for that location with the remaining four unused ports to be terminated.

9.3.15 Electrical Requirements

All major equipment should be designed and rated for 110V, AC operation and shall be UL listed.

9.4 BROADBAND SYSTEM CABLING

9.4.1 Trunk Cable

Trunk cable shall be foam filled, 100% shielded RG-11 cable or hardline cable as deemed appropriate by the vendor. All cables shall be plenum rated.

Electrical Specifications:

A. Nominal Impedance: 75 Ω
B. Factory Sweep Tested to Pass Band of: 5 MHz - 1000 MHz
C. Attenuation per 100 feet shall not exceed 6.0dB @ 1000 MHz @68°F

Submit a cutsheet with your proposal on the trunk cable quoted above.

9.4.2 Tap Cable

Tap cable for feeder runs shall consist of quad shielded RG-6 type coaxial cable. All tap cable shall be plenum rated.

Electrical Specifications:

A. Nominal Impedance: 75 Ω
B. Minimum RFI Shielding: 110dB or 105dB
C. Factory Sweep Tested to Pass Band of: 5 MHz - 1000 MHz
D. Attenuation per 100 feet shall not exceed 7.6 dB @ 1000 MHz @68°F

Submit a cutsheet with your proposal on the tap cable quoted above.

9.4.3 Splices

Tap cables shall be installed without breaks or splices. Splices shall be allowed in trunk cables only when encountering segments that require more than one (1) 90° bend or turn in the cable routing. All splices shall be properly secured.

9.5 AMPLIFIERS

An Amplifier should be included in the MC to power both legs being installed. If a loss in the existing system will result from connecting the new legs, the amplifier should be used to correct that loss. Amplifiers shall meet the following specifications.

9.5.1 Frequency Range

Broadband Amplifiers shall have amplification capabilities to 1000 MHZ.

9.5.2 Sub-Channel Pass Through

The amplifier shall allow for installation of return amplifier and filter modules to allow the sub-channels to pass through the amplifier in the reverse direction.

9.5.3 Equalization

The amplifier shall have built-in equalization capability to allow for tilt correction at the headend.

9.5.4 Power Supply

The amplifier shall have its own power supply.

9.5.5 Power Input

Unit should be capable of external AC line voltage powered or in-line powering.

9.5.6 Test Point

Unit shall have a -30 dB test point.

9.5.7 Output Levels

Output of the amplifier shall be 44 dBmv, nominal.

9.5.8 Operating Temperature

Operating temperature range shall be -20°C +65° C.

9.5.9 Return Loss

Input or output return loss shall not exceed 14 dB.

9.5.10 Noise

Noise figure shall not exceed 9.0 dB.

9.5.11 CTB/CM

Unit shall be 125-channel capable in reference to meet Composite Triple Beat or Cross Modulation specifications. Cross modulation shall not exceed -61 dB, Composite Triple Beat shall be -58 dB. Second order intermodulation shall be -70 dB. Hum modulation shall be -65 dB.

9.5.12 Installation Location

If distance requires additional amplifiers to be placed outside the headend, they shall be located in utility rooms or closets for easy access. These amplifiers shall not be located in ceilings or concealed areas, nor in an area accessible to students. Amplifiers located outside of the MC must be approved by the District prior to installation.

9.5.13 Cutsheet - Amplifier

Submit a brochure/cutsheet with your proposal on the amplifier(s) quoted above.

9.6 PASSIVE EQUIPMENT

9.6.1 Terminating Resistors

Terminating Resistors with 75 ohm impedance shall be installed at unused ports and feeder line.

9.6.2 Taps

A. Directional Coupler Tap shall be provided for required ends. The taps shall be fully shielded and in compliance with FCC rules pertaining to radiation. The taps should be available in isolation values up to 35 dB. Frequency response through any port shall be from 5 MHZ to 1000 MHZ. Through connection to the tap shall be made by standard “F” fittings.

B. Four-way directional coupler-type taps shall be provided as required for signal distribution. The taps shall be fully shielded and in compliance with FCC rules pertaining to radiation. All connections to the unit shall be by standard type "F” connectors. The taps shall be available in isolation values from 8 to 35 dB.

9.6.3 Line Equalizers

Line equalizers shall be provided as needed. System shall provide for a reverse tilt of no more than a 3 dB differential.

9.6.4 Splitters

Broadband Mixing and Splitting Devices shall be used in the system as required. These units shall be capable of being mounted on any flat surface and must meet FCC specifications on radiation. All units shall have a frequency response from 5 MHZ to 1000 MHZ. Two-way splitters shall have a maximum splitting loss of 5.0 dB. Four-way splitters shall have a maximum splitting loss of 10 dB. Directional couplers shall be available in nominal tap loss values of 8, 12, and 16 dB and the return loss at any terminal shall be 18 dB or higher. All passives located in communications closets (MDF & IDF) shall be outdoor rated passives.

9.7 CONNECTORS

All connectors shall be "F" type with radiation shield attached to the connector. All connectors shall have machined threads. RG-6 connectors shall be a one-piece construction with an integral RFI sleeve, an attached long barrel crimp ring shall attach to the cable with a hex type crimp. The RG-11 conductor mechanism or pin to reduce the diameter of the center conductor to a maximum of .030 inches. Feed through connectors will not be accepted.

This system will be subject to the Cumulative Leakage Index (CLI) performance specifications outlined in FCC Rules and Regulations part 76. Any connectors utilized on this network must not degrade the physical integrity of the system. The CATV provider may wish to review and evaluate any connector type before installation. It shall be the successful vendor's responsibility to contact the CATV representatives.

9.8 FACEPLATES

9.8.1 TV Plate (Used when a flush mount single / double gang box is present)

Provide one female F connector. Labeling shall be permanently engraved or silk-screened.

Application:	Video Device
Configuration:	"F" Connector pass-through
Style:	Individual snap-in style jacks
Qualifications:	UL Listed, CSA Certified
Wiring Scheme:	Pass through
Color:	**BLUE**
Engraved/Embossed:	"VIDEO", etc.

9.9 CATV SERVICE

The District intends to pass through all CATV channels to classroom monitors. The vendor shall be responsible for extending the demarc and connecting the CATV service to the new cable plant for transmission of CATV to the classroom.

9.10 DOCUMENTATION

9.10.1 "As Built" Documentation

Prior to acceptance, the successful vendor shall supply complete documentation of installation, configuration information. The documentation package shall provide the District with a comprehensive guide(s) for all operation and maintenance procedures for the "as built" system. All signal level measurements shall be documented and recorded on the Broadband Video Distribution System drawings as-built. Document output level at each TV location, designed level, and its deviation from the expected design level. Documentation of drops is to be provided on both paper and electronic media.

9.10.2 Inventory Records

The successful vendor shall provide the District with documentation for each component provided. An inventory list of all Original Equipment Manufacturer (OEM) equipment shall be supplied clearly indicating manufacturer, model, serial number, and installation location. Any custom equipment shall be identified, described and located.

9.10.3 Technical Manuals

All equipment and software manuals supplied by the manufacturer shall be delivered to the District. The successful vendor shall supply an inventory list of all such documentation including the number of copies of each item. A set of OEM manuals shall be supplied per building for each unit of equipment and/or software installed.

9.10.4 Turnover of Documentation

The successful vendor shall provide the District with an inventory identifying all documentation. The vendor shall obtain the signature of the District's representative at time of documentation turnover.

9.11 TESTING

9.11.1 Cumulative Leakage Index

Document the Cumulative Leakage Index (CLI) for each cable outlet. All system outlets must be shown to be in compliance with FCC Regulations, Part 76 in relation to Cumulative Leakage Index (CLI). Any deficiencies discovered shall be corrected by the vendor.

9.11.2 Output Levels

Test and document output level at each TV location using a Signal Level Meter (SLM). Each outlet on the network including unused tap ports shall have its actual level compared to the expected design level; all ports shall be within +/- 3 dB of the actual designed level of that outlet. Any deficiencies discovered shall be corrected by the vendor.

9.11.3 Sweep Test

A 1000 MHZ broadband spectrum sweep signal shall be injected in to the headend system. At each location, the signal level shall be checked and levels recorded for 54 MHZ and 1000 MHZ at both the TV jack and Broadcast input jack (where present).

Sweep pattern shall be checked for aberrations. Any defects found must be corrected prior to final payment.

9.11.4 Signal Demonstration

A video signal shall be placed on a lowband channel and 1000 MHZ band channel. A demonstration of video signal quality shall be made to District's representative at each jack location in a final walk through.

9.11.5 Submission of Testing Results

Test results are to be submitted to:

Nick Ward
Technology Director
Lapeer Community Schools
1025 West Nepessing Rd.
Lapeer, MI 48446

9.11.6 Final Acceptance

The Contractor shall demonstrate that all work is complete, free from physical and electrical defects or deficiencies and in satisfactory operating condition. District shall be allowed to inspect and test the work performed and to notify Contractor of any deficiencies. District or their designated representative will be the sole judge as to whether the work has been completed properly. All material or equipment that is deemed not to comply with this RFP will be replaced by the Contractor, at no charge to District, prior to final payment.

9.12 VIDEO DISTRIBUTION CABLING AND COMPONENTS COSTS

9.12.1 Purchase Price

Respond on the Bidder Response Form. Provide all costs associated with the equipment and services specified. Provide the following information:

- A complete, itemized equipment list.
- Your base bid cost.
- A unit cost for additional video drops.
- Your complete base bid amount with the performance bond identified as a separate cost. If any miscellaneous costs need to be included, be sure to identify and explain them.

9.12.2 Maintenance Costs

No maintenance pricing shall be required. A minimum one-year warranty on material and workmanship is required.

9.13 SUBCONTRACTORS AND REFERENCES

9.13.1 Subcontractors

See Bidder Response Form.

9.13.2 References

See Bidder Response Form.

SECTION E: APPENDICES

APPENDIX I: Site Information

The street address and telephone number of each facility are listed below.

FACILITY	ADDRESS	PHONE NUMBER
Turrill Elementary	785 S. Elm St	810.667.2438

APPENDIX II: Structured Cabling System Detail by Room

Room	Data Drops at 18" per room	Voice Drops per room	RG-6 at 84" per room	Total Qty of Cat6 Drops across all rooms	SVGA/ Dual RCA	Fiber Strands SM/MM / Copper backbone	Closet
A101 (Gym)	2	0	0	2			MC (Closet across from A119)
A102 (Kitchen)	4	1	0	5			MC
A106 (Boiler Room)	1	0	0	1			MC
A115	5	1	1	7	1		MC
A116	5	1	1	7	1		MC
A117	5	1	1	7	1		MC
A118	5	1	1	7	1		MC
A119	5	1	1	7	1		MC
A121	5	1	1	7	1		MC
B101	5	1	1	7	1	6 /12 / 50 Pair	IC (Current MC)
B102	5	1	1	7	1		IC
B103 (Commons)	10	0	2	10	2		IC
B104	5	1	1	7	1		IC
B105	5	1	1	7	1		IC
NEW MC SUBTOTAL:	**37**	**7**	**6**	**50**	**6**		
IC SUBTOTAL:	**30**	**4**	**6**	**38**	**6**		
GRAND TOTAL:	**67**	**11**	**12**	**88**	**12**	**6/12**	**IC**

APPENDIX III: Contract

LAPEER COMMUNITY SCHOOLS
STRUCTURED CABLING AGREEMENT

This STRUCTURED CABLING AGREEMENT ("the Agreement") is made on the Effective Date, between _____. (hereinafter called "the Contractor") whose address is _____, Michigan _____, and Lapeer Community Schools (hereinafter called "the Owner") whose address is 1025 West Neppessing St, Lapeer, MI 48446..

RECITALS

A. The Contractor will provide the Owner with the necessary components, installation and testing for a fully functioning STRUCTURED CABLING solution (herein called "the System(s)") as contemplated in the Request for Proposal.

A. The Owner desires to obtain a STRUCTURED CABLING solution, including cable, jacks, jumpers, installation and testing, connections, miscellaneous items and associated Services necessary for a fully functioning System from the Contractor upon the terms and conditions set forth herein and in the Request for Proposal, Contractor's response to the Request for Proposal and subsequent clarifications.

B. The Contractor shall supply all equipment, materials, technology and other related Services necessary to accomplish the requirements set forth in the Request for Proposal and the Contractor's response to the Request for Proposal. Parties agree that where there is a conflict between terms of this Agreement and the information presented in the referenced Contract Documentation, this Agreement shall take precedence. The order of precedence has been set forth in Paragraph 1.1. The parties also agree that where there is not a conflict between this Agreement and the information presented in the referenced Contract Documentation, that all terms and conditions in the Request for Proposal and the Contractor's Response to the Request for Proposal shall be incorporated by reference into the Agreement and shall be binding upon all parties to the Agreement.

C. Owner and the Contractor each binds themselves, their partners, successors, and other legal representatives to all covenants, agreements, and obligations contained in this Agreement.

E. It is expressly agreed that the Contractor is not an agent of Owner but an independent contractor. The Contractor shall not pledge or attempt to pledge the credit of Owner or in any other way attempt to bind the Owner.

NOW, THEREFORE, IN CONSIDERATION FOR THE FOREGOING AND THE MUTUAL COVENANTS SET FORTH HEREIN, THE PARTIES HERETO AGREE AS FOLLOWS:

1. **DEFINITIONS AND EXHIBITS**

1.1. Contract Documentation. "Contract Documentation" shall mean (i) this Agreement, (ii) bid bulletins and clarifications attached hereto, (iii) the Owner's Request for Proposal (RFP) dated December 2004, (iv) the Contractor's response to the RFP dated _____ and (v) the Implementation/Installation schedule.

1.2. Documentation. "Documentation" shall mean (i) all written materials or information relating to the System(s) or its operation, including without limitation, user-oriented and technical operation, reference and training manuals and (ii) the documentation as outlined in the Contract Documentation.

1.3. Effective Date. "Effective Date" shall mean the last date on which both parties hereto have executed this Agreement.

1.4. Purchase Price. "Purchase Price" shall mean the aggregate amount payable by the Owner for (i) the purchase of the System(s) and (ii) the Services to be provided by the Contractor in accordance with the RFP and the Contractor's response to the RFP. The Purchase Price is inclusive of all taxes, shipping, handling, and insurance.

1.5. Services. All installation, site work, testing, debugging and acceptance testing activities.

1.6. Sites. Sites shall mean the locations set forth in the Contract Documentation.

1.7. Construction Plan. Contractor will make every effort to accommodate the Owner's Construction Plan. Contractor will submit an Installation Plan commensurate with the timeframes agreed to with the Owner. The Installation Plan will identify, by week, the phase of the project in-process.

2. **TURNKEY SOLUTION**

2.1. Turnkey Solution. This Agreement and the other Contract Documentation set forth the terms and conditions upon which the Contractor will provide a "turnkey" solution for installation and operation of the System(s) for use by the Owner. The Contractor agrees that it will provide a complete "Turnkey Solution" to the Owner. The Contractor shall be responsible for the successful installation, acceptance testing and Documentation of the System(s). as detailed in the Contract Documentation.

2.2. The Contractor's Obligation. In consideration of the payment of the Purchase Price, it is agreed and understood that the Contractor shall be obligated to provide the following products and Services, subject to the terms and conditions set forth herein and in the Contract Documentation:

General Terms and Conditions (Section A of the RFP)
Vendor Information (Section B of the RFP)
Structured Cabling (Section C of the RFP)
Video Infrastructure (Section D of the RFP)
Installation, Testing and Acceptance (Section A, C and D of the RFP)
Warranties (Sections A, C and D of the RFP)

2.3. Guarantee. Contractor will guarantee its design, operation and functionality of the System(s), in accordance with the Contract Documentation.

2.4. Walk-Through. Contractor has had an opportunity to review each Site and acknowledges that it has no concerns with its proposed design that would prohibit Contractor from guaranteeing the installation and operation of the System(s), as contemplated in the Contract Documentation.

2.5. Complete Solution. Contractor will supply all labor, materials, Services and equipment necessary to provide the System(s) in accordance with the Purchase Price set forth in Section 3.1.

The Contractor represents and warrants that the purchase of the System(s) and installation Services provided to the Owner will constitute a fully operational solution as contemplated by the Contract Documentation.

3. **PAYMENT**

3.1. Purchase Price. The Contractor agrees to sell to the Owner and the Owner agrees to purchase the System(s) upon the terms and conditions set forth in this Agreement at a price not to exceed:

Structured Cabling **$_____**

3.2. Payment Terms: Payment shall be in accordance to the following schedule:

(A) Progress billing can be submitted monthly for equipment that is delivered and installed, based on a mutually agreed upon percentage of completion between the Owner and the Contractor. Total progress payments shall not exceed 80% of the total Purchase Price. Labor costs may be billed at the completion of the installation prior to final acceptance. Progress billings shall reflect the 20% retainage referenced below.

(B) 20% of the total Purchase Price will be held as retainage. 10% will be payable within (30) thirty days of receipt of all documentation. The remaining 10% will be payable within (30) thirty days of final acceptance of the completed System(s) by the Owner or its designated representative. The retainage shall be payable based upon the final acceptance of all sites.

3.3. Request for Payment. The Contractor shall submit to the Owner's project coordinator the standard AIA Application for Payment forms upon completion of the payment terms referenced in Paragraph 3.2 above. Approved invoices shall be paid within thirty (30) days from date of approval of the invoice. In the event of disputes and invoice is not approved, Owner shall notify Contractor within ten (10) days of receipt of the invoice.

3.4. Taxes. The Purchase Price is inclusive of any applicable taxes. The Owner, however, is a tax exempt entity except if the project makes additions and/or enhancements to real property.

3.5. Performance Bonds. Contractor shall provide a performance bond and a labor and materials payment bond upon award of this Agreement in the form acceptable to the Owner. The bonds shall be equal in amount to the total Purchase Price. The Surety of the bond shall remain in effect until all purchased hardware, software, and Services have been accepted by the Owner. Said bonds shall be provided by a Surety having a rating of A- or better from A. M. Best and Co. and said Surety shall be authorized to do business in the State of Michigan. In the event that the Contractor fails to perform its obligations under any contract between the Contractor and the Owner, the performance bond shall be paid to the Owner. The Contractor further agrees to save and hold harmless Owner and agents from all liability and damages of every description in connection with any subsequent contracts with any third parties. The Contractor shall submit the performance bond to **Nick Ward, Lapeer Community Schools** within two weeks of the Effective Date of this Agreement or prior to the start of work, whichever comes first. This Agreement shall be unenforceable by Contractor against Owner until the terms of this section have been satisfied. The cost of said bonds are included in the Purchase Price referenced in Section 3.1

3. 6 Purchase Quantities. The Owner reserves the right to adjust upward by two (2) times, or downward by twenty five (25%) percent, the quantities of items purchased without altering the unit purchase price upon award and throughout the contract period until final acceptance of the project.

3.7 Payment Disputes. Disputes regarding requests for payments will be communicated to Contractor by Owner, in writing, within ten (10) days of the receipt of invoice. Payments will not be delayed unless Contractor is unable to resolve the matter to Owner's satisfaction ten (10) days prior to payment due date.

4. INSTALLATION AND ACCEPTANCE

4.1 Installation Plan.

The Contractor shall install the System(s) in accordance with the implementation schedule that will be developed and agreed to by the parties within ten (10) days of the Effective Date.. Installation shall occur in phases in order to meet the requirements of the construction schedule. The installation of the structured cabling will likely occur in separate phases. In the event the Contractor is unable to adhere to the attached schedule or complete the installation schedule as attached, the Owner shall have the option to terminate this Agreement, award the remaining work to another contractor or negotiate a final completion date. In the event the Owner so terminates the Agreement and awards the remaining work to another contractor, the Contractor shall be responsible for and shall hold Owner harmless from any costs or fees to complete the project which exceed the amount of the Purchase Price remaining unpaid at the time of termination. Any changes or deviations to the installation timetable caused by failure of the Owner or any third parties to meet the completion date set forth therein, shall result in a schedule adjustment in the same magnitude which shall be subject to the Contractor's approval, which approval shall not be unreasonably withheld.

4.2 Project Manager. The Contractor designates _____ as on-site Project Manager for the duration of the project. Project Management will be within the guidelines as defined in the RFP.

4.3 Legal Compliance. The Contractor shall comply fully with all federal, state and local laws, statutes, ordinances, rules, regulations and codes applicable to the work performed as well as all applicable provision of the Occupational Safety and Health Act. This includes, but is not limited to, prevailing wage and fringe benefit rates as specified in Michigan's Prevailing Wage Act, MCL 408.551 et. seq., as applicable. The Contractor shall be responsible for adhering to all local and state fire codes and shall be responsible for firestopping all penetrations utilized.

4.4 Employee Qualification. All Contractor employees shall be thoroughly experienced in the particular class of work in which they are employed. In the event Owner determines that Contractor's staff are unqualified, unresponsive or otherwise unacceptable, Contractor will remove and replace said staff from the project in consultation with the Owner.

4.5 Status Meetings. The Contractor shall coordinate regular status meetings between the Owner Project Coordinator and the Contractor Project Manager as identified in the RFP, at which time a list of open items with targeted responsibility and due dates will be established.

4.6 Access to Sites. The Contractor will coordinate access to the Sites per the procedures outlined by the Owner.

4.7 Compliance with OSHA. Contractor shall comply with all applicable provisions of the Occupational Safety and Health Act throughout the duration of the project. Contractor shall also comply with all applicable laws, statutes, regulations, ordinances, codes, orders, rules and regulations in existence as of the date of this Agreement.

4.8 Testing. The Contractor shall perform all testing as to meet the specifications identified in the RFP and applicable bulletins.

4.9 Documentation. The Contractor shall provide all Documentation as required in the RFP and applicable bulletins.

4.10 Site Damage. The Contractor shall be responsible for restoring the physical Site to its original status if said damage is the result of the Contractor. The Owner shall determine whether the Contractor shall remedy the damage or a third party shall remedy the damage, to be compensated by the Contractor.

5. WARRANTY

5.1 Warranties on Equipment.

(A) The Contractor shall provide all warranties as identified in the RFP and the Contractor's response to the RFP and all applicable bulletins and clarifications. All warranties are effective from the date of the System(s) Final Acceptance.

5.2 The Contractor Representations and Warranties. In addition to the warranties set forth above, the Contractor represents and warrants that:

(A) The Contractor possesses full power and authority to enter into this Agreement and to fulfill its obligations hereunder;
(B) The performance of the terms of this Agreement and of the Contractor's obligations hereunder shall not breach any separate agreement by which the Contractor is bound,; and
(C) The Contractor is financially sound to perform its obligations
hereunder, and agrees that any material adverse change in such status shall be immediately communicated in writing to the Owner.

5.3 Warranty of Fitness For A Particular Purpose. The Owner has presented detailed technical specifications of the particular purpose for which the System(s) is intended. The Owner has provided detailed descriptions and criteria of how the System(s) can be defined to accomplish the particular purpose. The Owner has also defined the exact procedures and techniques to be employed in testing whether the System(s) has achieved the defined performance of this particular purpose. Given this advanced preparation concerning, and documentation about the Owner's particular purpose, the Contractor at the time this Agreement is in force has (1) reason and opportunity to know the particular purpose for which products are required, and (2) that the Owner is relying on the Contractor's experience and knowledge of these products to provide those which are most suitable and appropriate. Therefore, the Contractor warrants that the System(s) is fit for the purposes for which it is intended as described in the Contract Documentation.

5.4 Warranty. The Contractor warrants that all components provided under this Agreement, whether installed initially or under subsequent purchase orders, shall be: newly manufactured equipment or assembled from newly manufactured parts; approved by Underwriter's Laboratories; and, will be free from defects in workmanship or material for a period as specified in the RFP, Contractor's response to the RFP, and all bulletins and clarifications from the date of final System(s) Acceptance. During this warranty period, the Contractor shall furnish all new replacement parts, shipping costs, repaired parts, service labor, travel costs, and other repair costs at no cost to the Owner. At the conclusion of the warranty period, the Owner will consider Contractor support under a separate maintenance agreement.

5.5 Acceptance of Installation.

(A) Within thirty (30) days of receipt of written notice from Contractor that installation and testing of the System(s) is completed, Owner shall either accept or reject such System(s) by written notice to Contractor. Failure to give written notice of acceptance or rejection of System(s) within thirty (30) day period shall constitute acceptance. Any rejection shall expressly state the deficiencies giving rise to the rejection. Upon rejection

of the System(s) by Owner, the Owner shall provide Contractor with reasonable access to correct deficiencies identified, which correction shall be completed within ten (10) days of the date of access. Upon correction, Contractor again shall provide written notice to Owner that installation and testing is completed and the acceptance/ rejection process set forth above shall be repeated. This procedure shall continue until the installation of the System(s) is accepted or finally rejected by Owner.

(B) Upon final rejection by Owner of the System(s), Owner may without prejudice to any other rights or remedies of Owner and after giving Contractor and Contractor's surety seven (7) days written notice, terminate this Agreement with Contractor and may, subject to any prior rights of the surety take possession of the materials and finish the project by whatever method Owner may deem expedient. When Owner terminates this Agreement pursuant to this section, Contractor shall not be entitled to receive further payment until the project is finished. If the unpaid balance of the contract sum exceeds costs of finishing the project, such excess shall be paid to Contractor. If such costs exceed the unpaid balance, Contractor shall pay the difference to Owner. Nothing in Section 5.5 shall be construed to limit Owner's remedies under any warranty set forth below with respect to System(s).

5.6 Final Acceptance of the System(s). The System(s) proposed shall be defined to be finally accepted by Owner after meeting all requirements of the RFP and associated bulletins. The Owner or Owner's representative shall be the sole judge of whether all conditions for final acceptance have been met.

6. **TERMINATION**

6.1 Right to Terminate on Breach. Each party shall have, in addition to all other remedies available to it, the right to terminate this Agreement immediately upon written notice to the other party that the other party has committed a material breach of any of its obligations herein and such material breach shall not have been cured or corrected within ten (10) days following written notice of the same.

6.2 Events upon Termination. Upon termination of this Agreement by either party for breach or default of the other party, each party shall be entitled to exercise any other right, remedy or privilege which may be available to it under applicable law or proceed by appropriate court action to enforce the terms of the Agreement or to recover damages for the breach of this Agreement. Upon termination of this Agreement, the Contractor shall immediately provide the Owner with all current drawings and Documentation regarding this project.

7. GENERAL

7.1 Risk of Loss. The Contractor assumes all risk of loss or damage to the Equipment prior to acceptance. Title to the Equipment will pass at that time.

7.2 Governing Law. This Agreement shall be construed in accordance with, and its performance governed by, the laws of the State of Michigan.

7.3 Assignment. This Agreement and any interest herein may not be assigned or transferred, in whole or in part, by either party without the prior written consent of the other party, and any assignment or transfer without such consent shall be null and void.

7.4 Severability. If any provision of this Agreement is held invalid or unenforceable, the remainder of this Agreement shall nevertheless remain in full force and effect. If any provision is held invalid or unenforceable with respect to particular circumstances, it shall nevertheless remain in full force and effect in all other circumstances.

7.5 Force Majeure. Timely performance is essential to the successful implementation and ongoing operation of the project described herein. Time is of the essence. However, neither party shall be liable for any loss or damage suffered by the other party, directly or indirectly, as a result of the first party's failure to perform, or delay in performing, any of its obligations contained in this Agreement (except any obligations to make payments hereunder), where such failure or delay is caused by circumstances beyond the first party's control or which make performance commercially impracticable, including but not limited to, fire, flood, storm or other natural disaster, explosion, accident, war, riot, civil disorder, governmental regulations or restrictions of any kind or any acts of any government, judicial action, power failure, acts of God or other natural circumstances.

Force majeure shall not excuse performance unless:

(a) Within three (3) calendar days of the occurrence of force majeure, the party whose performance is delayed thereby shall provide the other party or parties with written notice explaining the cause and extent thereof, as well as a request for a time extension equal to the estimated duration of the force majeure events.

(b) Within seven (7) calendar days after the cessation of the force majeure event, the party whose performance was delayed shall provide the other party written notice of the time at which force majeure ceased and a complete explanation of all pertinent events pertaining to the entire force majeure situation.

Under no circumstances shall delays caused by a force majeure extend beyond one hundred-twenty (120) days from the scheduled delivery or completion date of a task, unless by prior to the one hundred-twenty (120) days written notice of permission of the other party. Failure to secure this written prior permission, even in the case of force majeure, shall constitute default by the party failing to meet the requirement.

7.5.1 RIGHT OF CANCELLATION **-** Either party shall have the right to cancel the Agreement if Force Majeure suspends performance of scheduled tasks by one or more parties for a period of one hundred-twenty (120) or more days from the scheduled date of the task. If a cancellation due to a Force Majeure occurs before title passes to the Owner, the Contractor may keep any parts of the System(s) as it can salvage, but must remove same at its own expense. If cancellation occurs due to a Force Majeure after title passes to the Owner, the System(s) shall remain with the Owner and the Contractor shall be entitled to any such payments as have accrued according to the payment schedule.

7.6 Entire Agreement. This Agreement constitutes the entire agreement between the parties, supersedes all previous agreements, written or oral, and there are no understandings, representations or warranties of any kind, express, implied or otherwise, not expressly set forth herein.

7.7 Non-Waiver and Modification. Waiver by either party of any default or breach of any provision of this Agreement by the other party shall not be construed as a waiver of any subsequent default or breach. No extension of time for payment or other accommodation granted to a party shall operate as a waiver of any of its rights under this Agreement. No

provision of this Agreement may be modified by a party without the prior written consent of the other party.

7.8 Insurance. The Contractor agrees that it shall maintain Insurance as specified in Section 1.35 of the RFP throughout the term of this Agreement. Contractor will name Owner as an additional named insured under Contractor's commercial general liability insurance policy. Contractor agrees to deliver to Owner either a duplicate original or certificate of all policies procured by Contractor in compliance with its obligations hereunder, together with evidence of payment thereof, and including an endorsement which states that such insurance may not be canceled except upon ten (10) days written notice to Owner.

7.9 Survival. All provisions of this Agreement which, by their nature, should survive termination shall survive termination of this Agreement.

7.10 General Indemnification. The Contractor agrees to indemnify, hold harmless and defend the Owner, its Board and its Board members in their official and individual capacities, its successors, assignees, employees, contractors and agents from and against any and all claims, costs, expenses, damages, and liabilities, including reasonable attorney's fees, arising out of the (i) negligent act or willful misconduct of the Contractor, its officers, directors, employees and agents, (ii) any breach of the terms of this Agreement by the Contractor or (iii) any breach of any representation or warranty by the Contractor under this Agreement. Owner agrees to notify Contractor by certified mail, return receipt requested, immediately upon knowledge of any claim, suit, action, or proceeding for which it may be entitled to indemnification under this Agreement. Contractor shall have the sole right, but not the obligation, to control the defense of any such claim. Owner agrees to provide reasonable assistance to Contractor, at Contractor's expense, in defense of same.

7.11 Shipping of Equipment. All shipping and insurance costs to and from the Site shall be included in the Contractor's proposal. All payments to shipping agents and for insurance fees shall be made directly by the Contractor. The Owner shall make no payments to any firm concerning the shipment, installation and delivery of Equipment which is not a part of this Agreement and for which exact payments are not described. Contractor shall be responsible for all arrangements for the shipment and receipt of equipment to Owner prepared site. The Contractor shall provide all properly trained representatives to unpack all items of Equipment and place this Equipment in the proper locations. The Contractor shall also be responsible for removal of all debris and packing materials from the site resulting from the installation of the Equipment. The Owner, at its option, may require the Contractor to provide certificates describing, to the satisfaction of the Owner, evidence of proper (as required by the State of Michigan) worker's compensation and liability insurance for all Contractor staff and representatives involved in the installation of the Equipment. The Owner shall be named as an additional insured and as the Certificate Holder for all work under this Agreement.

7.12 Non-Waiver of Agreement Rights. It is the option of any party to the Agreement to grant extensions or provide flexibilities to the other party in meeting scheduled tasks or responsibilities defined in the Agreement. Under no circumstances, however, shall any parties to the Agreement forfeit or cancel any right presented in the Agreement by delaying or failing to exercise the right or by not immediately and promptly notifying the other party in the event of a default. In the event that a party to the Agreement waives a right, this does not indicate a waiver of the ability of the party to, at a subsequent time,

enforce the right. The payment of funds to the Contractor by Owner should in no way be interpreted as acceptance of the System(s) or the waiver of performance requirements.

7.13 Patents, Copyrights and Proprietary Rights Indemnification. The Contractor agrees to indemnify, hold harmless and defend, at its own expense, the Owner from any claim or suit brought against the Owner arising from claims of violation of United States patents or copyrights or claims of misappropriation or misuse of trade secrets resulting from the Contractor or the Owner use of any equipment, technology, Documentation, and/or data developed in connection with the Services and products described in this Agreement. The Owner will provide the Contractor with a written notice of any such claim or suit. The Owner will also assist the Contractor, in all reasonable ways, in the preparation of information helpful to the Contractor in defending the Owner against this suit.

In the event that the Owner is required to pay monies, in defending such claims, resulting from the Contractor being uncooperative or unsuccessful in representing the Owner's interest, or in the event that the Owner is ordered to pay damages as a result of a judgment arising out of an infringement of patents and/or copyrights, Contractor agrees to fully reimburse for all monies expended in connection with these matters. The Owner retains the right to offset against any amounts owed Contractor any such monies expended by the Owner in defending itself against such claims.

Should a court order be issued against the Owner restricting the Owner's use of any product, and should the Contractor determine not to further appeal the claim issue, at the Owner's sole option the Contractor shall provide, at the Contractor's sole expense, the following:

(a) Purchase for the Owner the rights to continue using the contested product(s), or
(b) Provide substitute products to the Owner which are, in the Owner's sole opinion, of equal or greater quality.

If (a) or (b) are not commercially feasible, Contractor will refund all monies paid to the Contractor for the product(s) subject to the court action. The Contractor shall also pay to the Owner all reasonable related losses related to the product(s) and for all reasonable expenses related to the installation and conversion to the new product(s).

7.14 Nondiscrimination By Contractor Or Agents Of Contractor. Neither the Contractor nor anyone with whom the Contractor shall contract shall discriminate against any person employed or applying for employment concerning the performance of the Contractor responsibilities under this Agreement. This discrimination prohibition shall apply to all matters of initial employment, tenure and terms of employment, or otherwise with respect to any matter directly or indirectly relating to employment concerning race, color, sex, religion, age, national origin, or ancestry. A breach of this covenant may be regarded as a default by the Contractor of this Agreement.

7.15 Subcontractors. When using any subcontractors not stated in the Contractor's response to the RFP, the Contractor must obtain written prior approval from the Owner for activities or duties to take place at the Owner's site. In using subcontractors, the Contractor agrees to be responsible for all their acts and omissions to the same extent as if the subcontractors were employees of the Contractor.

7.16 Effect of Regulation. Should any local, state, or national regulatory authority having jurisdiction over the Owner enter a valid and enforceable order upon the Owner which has the effect of changing or superseding any term or condition of this Agreement, such order shall be complied with, but only so long as such order remains in effect and only to the extent actually necessary under the law. In such event, this Agreement shall remain in effect, unless the effect of the order is to deprive the Owner of a material part of its Agreement with the Contractor. In the event this order results in depriving the Owner of materials or raising their costs beyond that defined in this Agreement, the Owner shall have the right to rescind all or part of this Agreement (if such a rescission is practical) or to end the Agreement term upon thirty (30) days written prior notice to the Contractor. Should the Agreement be terminated under such circumstances, the Owner shall be absolved of all penalties and financial assessments related to cancellation of the Agreement.

7.17 Non-Collusion Covenant. The Contractor hereby represents and agrees that it has in no way entered into any contingent fee arrangement with any firm or person concerning the obtaining of this Agreement. In addition, the Contractor agrees that a duly authorized Contractor representative will sign a non-collusion affidavit, in a form acceptable to Owner, that the Contractor firm has received from Owner no incentive or special payments, or considerations not related to the provision of System(s) and Services described in this Agreement.

IN WITNESS WHEREOF, the parties have executed this Agreement to be effective as of the date first set forth above.

OWNER: LAPEER COMMUNITY SCHOOLS **CONTRACTOR: _____**

BY:_____ **BY:**_____

TITLE:_____ **TITLE:**_____

DATE:_____ **DATE:**_____

SECTION F: BIDDER RESPONSE FORM